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Effects of magnetic-ion dilution in heavy fermion systems

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Some effects of magnetic-ion dilution in heavy fermion systems are investigated on the basis of the periodic Anderson model with randomly distributed impurity sites without f electrons; these impurity sites correspond to non-magnetic ions in real materials. The density of states, the specific heat and the resistivity, and their concentration dependence for impurity sites are calculated by the scheme of the dynamical mean-field theory with the coherent potential approximation. By the present scheme, we obtain both the usual Fermi liquid behavior in heavy fermion systems and the local Fermi liquid behavior in single Kondo impurity systems on the same footing.